



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/617,855

07/14/2003

Dong-Ryeol Lee

1293.1839

3801

21171 7590 03/31/2009
STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

GOMA, TAWFIK A

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

03/31/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/617,855

Applicant(s)

LEE ET AL.

Examiner

TAWFIK GOMA

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6-9,11,12,17-20,22-25 and 28-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6-9,11,12,17-20,22-25 and 28-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the amendments filed on 12/09/2008.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 6-9, 11-12, 17-20, 22-25 and 29-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1, 12 and 23 have been amended to include the limitation that the adjustment occurs for “all incident light emitted from the light source.” The specification does not describe the claimed feature of having “all incident” light adjusted. The remaining claims are rejected for the same reason as they depend on independent claims 1, 12 and 23.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 12, 17, 23, 25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamanaka (US 5923635).

Regarding claims 1, 12, and 23, Yamanaka discloses an optical pickup of an optical disc for a recording/reproducing apparatus (fig. 1), comprising: a light source emitting a light (1, fig. 1); an objective lens (14, fig. 1 and col. 7 lines 1-4) focusing the light emitted from the light source and irradiating the light on the optical disc (fig. 1), a hologram optical element (2, fig. 3) adjusting a convergence and/or a divergence of all incident light emitted from the light source, and a collimating lens (14, fig. 1 and col. 7 lines 1-4) to convert the light emitted from the light source into parallel light after passing through the collimating lens and the optical element (col. 7 lines 1-4), wherein the hologram optical element focuses the light emitted from the light source (fig. 2, col. 6 lines 53-59 and col. 7 lines 5-17) based on the focal length of the collimating lens to change a focus of the light emitted from the light source and incident on the hologram optical element to coincide with a focal length permitting a generation of substantially collimated light by the collimating lens different from light incident on the collimating lens that does not coincide with the focal length of the collimating lens and which does not permit the generation of the substantially collimated light by the collimating lens (col. 7 lines 2-4 and col. 8 lines 1-26) and wherein the hologram optical element is adjusted along an optical axis to

Art Unit: 2627

adjust the convergence and/or divergence of the light emitted from the light source during assembly of the optical pickup (col. 8 lines 1-21, and col. 9 lines 5-7)

Regarding claims 6, 17 and 27, Yamanaka further discloses wherein the optical element (2, fig. 1) is disposed between the light source (1, fig. 1) and the collimating lens (14, fig. 1).

Regarding claim 24, Yamanaka further discloses wherein the light source comprises an edge emitting laser or a vertical cavity surface-emitting laser to emit the light having a predetermined wavelength (1, fig. 2).

Regarding claim 25, Yamanaka further discloses an optical path changing device (6, fig. 4) wherein the collimating lens is disposed between the optical path changing device and the objective lens (3, fig. 3 and col. 7 lines 2-4), so that the collimating lens focuses the divergent light emitted from the light source and makes the light into parallel light (col. 7 lines 2-4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9, 11, 18-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka (US 5923635) in view of Park (US 2001/0043522).

Regarding claims 7, 8, 18, and 19, Yamanaka fails to disclose wherein the optical pickup comprises a beam shaping device disposed between the collimating lens and the objective lens. In the same field of endeavor, Park discloses an optical pickup with a beam shaping device disposed between the collimating lens and the objective lens to shape the light (16, fig. 2). It

Art Unit: 2627

would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the pickup disclosed by Yamanaka by providing the beam shaping device between the collimating lens and the objective lens as taught by Park. The rationale is as follows: One of ordinary skill in the art would have provided a beam shaping device between the collimating lens and the objective lens to the pickup of Yamanaka as it would have been the combination of prior art elements using known methods to yield predictable results.

Regarding claims 9, 11, 20, and 22, Yamanaka fails to disclose wherein the light source comprises a plurality of light sources for different wavelengths of light. Yamanaka discloses that the optical element can adjust the convergence/divergence of the light based on at least one wavelength of light used by Yamanaka (col. 8 lines 27-30). In the same field of endeavor, Park discloses providing a plurality of light sources to emit light having different wavelengths and the optical pickup is compatible for a plurality of optical recording media having different formats (11a, 11b, fig. 2 and par. 27). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the pickup disclosed by Yamanaka by providing multiple light sources for different format discs as taught by Park. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to provide a plurality of light sources in order to give the user the capability of playing multiple formats with the same device, such as DVD/CD.

Claims 28-34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka (US 5923635) in view of Kim (US Patent 6337841).

Regarding claim 28, Yamanaka further discloses wherein the laser source emits a wavelength of 655 nm (col. 8 lines 27-31). Yamanaka fails to disclose the numerical aperture of the objective lens. In the same field of endeavor, Kim '841 discloses wherein the objective lens has a numerical aperture of 0.6 (col. 5 lines 58-60). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to use a numerical aperture of 0.6 as it was a common numerical aperture of an objective lens used during DVD recording.

Regarding claim 29, Yamanaka discloses providing an optical path changing device (6, fig. 1) but fails to disclose providing a collimating lens between the light source and the optical path changing device. In the same field of endeavor, Kim '841 discloses an optical path changing device (231, fig. 11) wherein a beam shaping element and a collimating lens are between the light source and the optical path changing device (223, 225, fig. 11). It would have been obvious to one of ordinary skill in the art to provide a collimating lens between the light source and the optical path changing device. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide a collimating lens between the light source and the optical path changing device in order to have parallel light enter the optical path changing device.

Regarding claim 30, Kim '841 further discloses wherein the optical path-changing device comprises a plate beam splitter (231, fig. 11). It would have been obvious to use a plate beam splitter as an alternative to a half-mirror disclosed by Yamanaka as it would have been a simple substitution of one known element in the art for another which would yield predictable results.

Regarding claim 31, Yamanaka fails to disclose a beam shaping element disposed on a path of the light after passing through the collimating lens and the optical element. In the same field of endeavor, Kim discloses an optical pickup with a beam shaping device disposed between the collimating lens and the objective lens to shape the light (135, fig. 3). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the pickup disclosed by Yamanaka by providing the beam shaping device between the collimating lens and the objective lens as taught by Kim. The rationale is as follows: One of ordinary skill in the art would have provided a beam shaping device between the collimating lens and the objective lens to the pickup of Yamanaka as it would have been the combination of prior art elements using known methods to yield predictable results.

Regarding claim 32, Yamanaka fails to disclose wherein a beam shaping element and a collimator lens are disposed between the light source and the plate beam splitter so that the light reflected from the optical disc and passing through the plate beam splitter becomes the parallel light in a beam shaping state. Kim discloses providing a beam shaping element (223, fig. 11) and a collimating lens (225, fig. 11) between a light source and a plate beam splitter (fig. 11). It would have been obvious to provide the beam shaping element and collimating lens between the light source and the beam splitter. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the beam shaping element and the collimator lens prior to the beam splitter in order to make use of stray light that is emitted from the light source, thereby making the optical system more efficient.

Regarding claim 33, Yamanaka fails to disclose a grating splitting the light emitted from the light source into at least three light beams to detect a tracking error signal using a three-beam

method. In the same field of endeavor, Kim discloses providing a grating used for a three-beam tracking method (123, fig. 3). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the pickup or Yamanaka, by including a grating for a three-beam tracking method as taught by Kim. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have provided a grating for a three beam method as it would have been the application of a known technique to a known device ready for improvement to yield predictable results.

Regarding claim 34, Yamanaka fails to disclose wherein the beam shaping device and the collimating lens are disposed between the beam splitter and the objective lens. Kim '841, discloses a beam shaping device (135, fig. 3), and collimating lens (133, fig. 3) disposed between a beam splitter (113, fig. 3) and an objective lens (137, fig. 3). It would have been obvious to one of ordinary skill in the art to place the beam shaping element and the collimating lens between the beam splitter and the objective lens. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the beam shaping device and the collimating lens between the beam splitter and the objective lens in order to shape and collimate the light that is reflected from the disc increasing the optical efficiency of the pickup since stray light caused by the reflection off of the disc will be shaped and made convergent on the detectors.

Regarding claim 36, Yamanaka fails to disclose the grating, but Kim discloses the grating being a separate element in the combination above (see claim 33).

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka (US 5923635) in view of Kim (US Patent 6337841) as applied to claims 28-34 and 36 above and

further in view of Ohnishi et al (US 6507009).

Regarding claim 35, Yamanaka further discloses a photo detector (7, fig. 1). Yamanaka in view of Kim fail to disclose providing a lens for removing aberration. In the same field of endeavor, Ohnishi discloses providing a lens for removing aberration in front of a photodetector with an inclination opposite that of the plate beam splitter (12, fig. 10). It would have been obvious to one of ordinary skill in the art to provide the lens disclosed by Ohnishi. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the lens disclosed by Ohnishi in order to amend for the coma aberration from a plate beam splitter (see Ohnishi col. 9 lines 46-55).

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka (US 5923635) in view of Kim (US Patent 6337841) as applied to claims 28-34 and 36 above and further considered with Tajiri (US 6072607).

Regarding claim 37, Yamanaka in view of Kim fail to disclose providing a grating and a hologram element in one united body. Tajiri discloses wherein a grating and a holographic optical element are formed in one united body (7, 60, fig. 16). It would have been obvious to one of ordinary skill in the art to provide both a grating and a hologram optical element that are formed in a united body. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to provide both elements in order to adjust their optical properties separately, thereby making the system more precise and one would be motivated to make the diffraction grating and the optical element in a united body in order to ensure that no displacement occurs between the grating and the optical element due to disturbances to the pickup.

Claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka (US 5923635) in view of Oohchida et al (US 6584060).

Regarding claims 38-40, Yamanaka fails to disclose the focal length of the collimating lens. In the same field of endeavor, Oohchida discloses an optical pickup with a collimator lens whose focal length is 10 mm (col. 9 lines 26-35). It would have been obvious to one of ordinary skill in the art to modify the pickup disclosed by Yamanaka by providing a collimating lens with a focal length of 10 mm as taught by Oohchida. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide a collimating lens with a focal length of 10 mm in order to increase the optical efficiency of the pickup.

Response to Arguments

Applicant's arguments with respect to claims 1, 6-9, 11, 12, 17-20, 22-25 and 28-40 have been considered but they are not persuasive. Applicant argues that Yamanaka does not disclose having "all incident" light adjusted by the hologram element. Applicant's evidence in the Yamanaka reference to support this argument is a reference to figure 6A, which shows how the diffraction grating acts to obtain the desired focal point (Q point) by adjusting convergence of the emitted light. Nowhere in figure 6(a) or in any part of the Yamanaka disclosure is it suggested that only some of the light is caused to change as asserted by applicant. Yamanaka clearly shows that all light emitted from a light source 1 is adjusted such that an imaginary focal point is created which achieves the desired focal distance of the system.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAWFIK GOMA whose telephone number is (571)272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph H. Feild/
Supervisory Patent Examiner, Art Unit
2627

/Tawfik Goma/
Examiner, Art Unit 2627